6. Fujita

Program Name: Fujita.java Input File: fujita.dat

Fujita is fascinated with number bases, specifically with the log values of different numbers in different bases.
He decides to experiment by writing a program that will output bar graphs using this idea, but needs your help. He wants the program to produce a horizontal bar graph whose length represents the log of a value N given a certain base B. For example, for the value 1000 in base 2, the bar produced will have ten "*"s, since the log, base 2, of 1000 is approximately 10.

One way Fujita thinks about finding the log value of a number is to consider the powers of 2 close to 1000, which are 512 (2^9), just less than 1000, and 1024 (2^10), just greater than 1000. For the purposes of this exercise, he decides to use the log of the value just greater than N.

For another value, 3671, and a base of 4, the bar graph produced contains six stars, indicating the approximate log value of 6, base 4, of the value 3671. He understands that this also is an approximation, since 4 to the power of 6 is actually 4096, but it is the closest log value that just exceeds 3671. The power of 4 just less than 3671 is 4^5, or 1024.

Input - Several pairs of positive integer values N and B (N>B), with N having up to 20 significant digits, and B having a value no greater than 10.

Output - For each pair of values, output the number of stars ("*") in a horizontal bar graph that represents the log value of N, base B, as described and demonstrated above.

Sample data:

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1000 2
3671 4
9182736453 5
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Sample Output:

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